Volunteer Lake Assessment Program Individual Lake Reports
GOOSE POND, CANAAN, NH

MORPHOMETRIC DATA

| | | | | | | | TROPHIC CLASSIFICATION | | KNOWN EXOTIC SPECIES |

Watershed Area (Ac.):	10,176	Max. Depth (m):	11	Flushing Rate (yr¹)	1.6	Year	Trophic class	
Surface Area (Ac.):	554	Mean Depth (m):	4.5	P Retention Coef:	0.6	1988	OLIGOTROPHIC	
Shore Length (m):	10,100	Volume (m³):	11,296,500	Elevation (ft):	829	2005	MESOTROPHIC	

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	Chlorophyll-a	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.
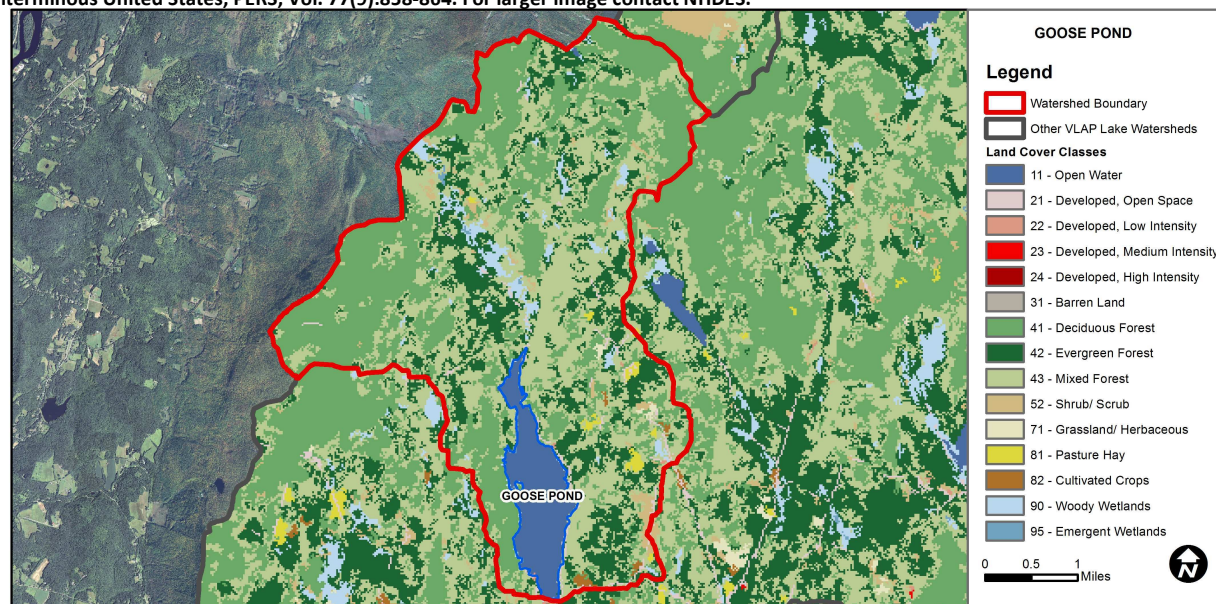
Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	5.98	Barren Land	0	Grassland/Herbaceous	0.16
Developed-Open Space	1.04	Deciduous Forest	34.05	Pasture Hay	0.52
Developed-Low Intensity	0.06	Evergreen Forest	18.08	Cultivated Crops	0.26
Developed-Medium Intensity	0	Mixed Forest	35.68	Woody Wetlands	2.66
Developed-High Intensity	0	Shrub-Scrub	1.29	Emergent Wetlands	0.22

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphics*)

◊ **CHLOROPHYLL-A:** Chlorophyll levels peaked in August however 2013 average levels were relatively low and below the state median. Visual inspection of the historical data indicates relatively stable chlorophyll levels since monitoring began.

◊ **CONDUCTIVITY/CHLORIDE:** Conductivity levels were relatively low at most stations, however slightly elevated in Hinkson and Mourton Brooks particularly in August during low flow conditions. Epilimnetic conductivity was unusually high in July and indicates potential cross-contamination. Visual inspection of historical data indicates relatively stable epilimnetic conductivity.

◊ **E. COLI:** Beach E. coli levels were well below state standards for public beaches.

◊ **TOTAL PHOSPHORUS:** Epilimnetic phosphorus levels were slightly higher than normal. Water levels were lowered in April to allow repairs to the dam and were still very low in May, but had recovered by June after significant rainfall. Low water levels as well as significant rainfall likely contributed to the slightly higher phosphorus levels. Visual inspection of historical data indicates relatively stable epilimnetic phosphorus since monitoring began. Low flow conditions in May likely contributed to elevated phosphorus and turbidity in Marshall Bk.

◊ **TRANSPARENCY:** Transparency was generally lower June through August, however average transparency continues to be well above the state median. Visual inspection of historical data indicates relatively stable transparency since monitoring began.

◊ **TURBIDITY:** Tributary turbidity was generally elevated during low flow conditions. Metalimnetic turbidity was slightly elevated in May and June possibly due to a layer of algae at that depth.

◊ **pH:** Deep spot pH was lower than desirable range 6.5 – 8.0 units in the Metalimnion and Hypolimnion, however tributary pH levels generally remain above 6.5 units. Visual inspection of historical data indicates variable epilimnetic pH.

◊ **RECOMMENDED ACTIONS:** Encourage local road agents to obtain a NH Voluntary Salt Applicator license through the UNH Technology Transfer Center's Green SnowPro Certification Program. Field data indicate the presence of cyanobacteria in August; continue citizen cyanobacteria monitoring and notification. Keep up the great work!

	Table 1. 2013 Average Water Quality Data for GOOSE POND								
	Alk.	Chlor-a	Cond.	E. Coli	Total P	Trans.		Turb.	pH
Station Name	mg/l	ug/l	uS/cm	#/100ml	ug/l	m		ntu	
						NVS	VS		
Beach				8					
Big Island Cove Brook			34.5		6			1.68	6.58
Epilimnion	8.76	3.72	50.4		8	4.20	4.60	0.89	6.55
Metalimnion			36.1		8			1.13	6.42
Hypolimnion			36.6		9			1.67	6.29
Goose Pond Brook			35.8		8			0.94	6.93
Hinkson Brook			67.7		9			1.41	6.74
Island View Brook			35.5		5			1.84	6.84
Marshall Brook			36.0		12			1.36	6.77
Mourton Brook			70.0		6			1.26	6.87

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
pH	N/A	Ten consecutive years of data necessary.	Chlorophyll-a	N/A	Ten consecutive years of data necessary.
Conductivity	N/A	Ten consecutive years of data necessary.	Transparency	N/A	Ten consecutive years of data necessary.
			Phosphorus (epilimnion)	N/A	Ten consecutive years of data necessary.

Historical Trend Epilimnetic Conductivity and pH

Historical Deep Spot Chlorophyll-a, Epilimnetic Total Phosphorus & Transparency Data